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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/909,417	07/19/2001	Masahiro Yatake	U 013559-6	7288
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LADAS & PARRY				
26 WEST 61ST STREET				
NEW YORK, NY 10023				
EXAMINER				
SHOSHO, CALLIE E				
ART UNIT		PAPER NUMBER		
1714				

DATE MAILED: 01/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/909,417

Applicant(s)

YATAKE, MASAHIRO

Examiner

Callie E. Shosho

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.135(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2003 and 10 November 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-9 and 11-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-9 and 11-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. All outstanding rejections except for those described below are overcome by applicants' amendment filed 7/28/03.

The following action is non-final in light of the new grounds of rejection as set forth below with respect to Iwata et al. (U.S. 4,986,850).

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 4-5, 7-9, 11-18, and 20-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Iwata et al. (U.S. 4,986,850).

Iwata et al. disclose aqueous ink jet ink comprising water-soluble dye or pigment, 10-50% alkylene glycol, and 0.5-4% alkylene oxide additive of polyhydric alcohol wherein the polyhydric alcohol includes saccharides such as glycerin, hexose, sugar-alcohol, and pentose (col.4, lines 22-25, 36-38, and 47-50 and col.4, line 64-col.5, line 19). From example 1, for instance, it is seen that the alkylene oxide additive of polyhydric alcohol has molecular weight of less than 1000. Although there is no disclosure of the surface tension, given that Iwata et al. disclose ink as presently claimed, it is clear that the ink would inherently possess surface tension as presently claimed.

Attention is drawn to examples 3 and 4, which each disclose ink comprising combination of alkylene oxide additive of polyhydric alcohol and glycerin, i.e. glycerol.

In light of the above, it is clear that Iwata et al. anticipate the present claims.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iwata et al. (U.S. 4,986,850) in view of *Introduction to Physical Polymer Science*.

The disclosure with respect to Iwata et al. in paragraph 3 above is incorporated here by reference.

The difference between Iwata et al. and the present claimed invention is the requirement in the claim of the molecular weight distribution of the saccharide-alkyleneoxy derivative.

Iwata et al. disclose the molecular weight of the saccharide-alkyleneoxy, however, there is no disclosure that this saccharide derivative has molecular weight distribution of 2 or more.

However, given that Iwata et al. disclose saccharide-alkyleneoxy derivative identical to that presently claimed, it would have been obvious to one of ordinary skill in the art that the saccharide-alkyleneoxy derivative would intrinsically possess same molecular weight distribution as presently claimed.

Evidence to support this position is found in *Introduction to Physical Polymer Science* (pages 97-99), which discloses that the polydispersity or molecular weight distribution of a polymer depends on the type of polymerization used to make the polymer. As seen on page 99,

chain polymerization results in polymer with polydispersity of 1.5-3 while step polymerization results in polymer with polydispersity of 2-4.

Thus, given that Iwata et al. disclose saccharide-alkyleneoxy derivative identical to that presently claimed which is necessarily made by the same polymerization process as the saccharide-alkyleneoxy derivative presently claimed, it is clear that the saccharide-alkyleneoxy derivative of Iwata et al. would intrinsically possess the same molecular weight distribution as presently claimed, and thus, one of ordinary skill in the art would have arrived at the claimed invention.

6. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iwata et al. (U.S. 4,986,850) in view of Hayashi et al. (U.S. 6,500,248) or Johnson et al. (U.S. 6,478,863).

The disclosure with respect to Iwata et al. in paragraph 3 above is incorporated here by reference.

The difference between Iwata et al. and the present claimed invention is the requirement in the claim of water-dispersible pigment.

Hayashi et al., which is drawn to ink jet ink, disclose the use of pigment which is made dispersible by surface oxidation in order to produce pigment which is stably present in the ink without dispersant (col.4, lines 36-50 and col.4, line 57-col.5, line 3).

Alternatively, Johnson et al., which is drawn to ink jet ink, disclose the use of pigment with polymer attached in order to improve the dispersibility and dispersion stability of the pigments (col.1, lines 62-65, col.3, lines 27-29, col.4, line 59-col.5, line 5, and col.10, lines 60-61 and 66).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use pigment that is made dispersible by surface oxidation or pigment with polymer attached in the ink of Iwata et al., and thereby arrive at the claimed invention.

7. Claims 4-5, 7-9, 11, 13-18, and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 62015274 in view of Sano et al. (U.S. 5,503,664).

JP 62015274, an English translation of which is included in this office action, discloses ink jet ink comprising water, water-soluble dye or pigment, solvent such as hexylene glycol, and 0.5-20% alkylene oxide adduct of glucose which has molecular weight less than 1000 (abstract and pages 3-5).

The difference between JP 62015274 and the present claimed invention is the requirement in the claims of saccharide.

Sano et al., which is drawn to ink jet ink, disclose the use of 0.1-40% saccharide such as glucose, mannose, sorbitol, etc. in order to produce ink that does not cause obstruction in nozzle and has good jetting stability (col.3, lines 48-67 and col.5, lines 5-11).

In light of the motivation for using saccharide disclosed by Sano et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use saccharide in the ink of JP 62015274 in order to produce ink which does not cause obstruction in nozzle and has good jetting stability, and thereby arrive at the claimed invention.

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 62015274 in view of Sano et al. as applied to claims 4-5, 7-9, 11, 13-18, and 20-21 above, and further in view of *Introduction to Physical Polymer Science*.

The difference between JP 62015274 in view of Sano et al. and the present claimed invention is the requirement in the claim of the molecular weight distribution of the saccharide-alkyleneoxy derivative.

JP 62015274 discloses the molecular weight of the saccharide-alkyleneoxy derivative, however, there is no disclosure that this saccharide derivative has molecular weight distribution of 2 or more.

However, given that JP 62015274 discloses saccharide-alkyleneoxy derivative identical to that presently claimed, it would have been obvious to one of ordinary skill in the art that the saccharide-alkyleneoxy derivative would intrinsically possess same molecular weight distribution as presently claimed.

Evidence to support this position is found in *Introduction to Physical Polymer Science* (pages 97-99), which discloses that the polydispersity or molecular weight distribution of a polymer depends on the type of polymerization used to make the polymer. As seen on page 99, chain polymerization results in polymer with polydispersity of 1.5-3 while step polymerization results in polymer with polydispersity of 2-4.

Thus, given that JP 62015274 discloses saccharide-alkyleneoxy derivative identical to that presently claimed which is necessarily made by the same polymerization process as the saccharide-alkyleneoxy derivative presently claimed, it is clear that the saccharide-alkyleneoxy derivative of JP 62015274 would intrinsically possess the same molecular weight distribution as

presently claimed, and thus, one of ordinary skill in the art would have arrived at the claimed invention.

9. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 62015274 in view of Sano et al. as applied to claims 4-5, 7-9, 11, 13-18, and 20-21 above, and further in view of Hayashi et al. (U.S. 6,500,248) or Johnson et al. (U.S. 6,478,863).

The difference between JP 62015274 in view of Sano et al. and the present claimed invention is the requirement in the claims of water-dispersible pigment.

Hayashi et al., which is drawn to ink jet ink, disclose the use of pigment which is made dispersible by surface oxidation in order to produce pigment which is stably present in the ink without dispersant (col.4, lines 36-50 and col.4, line 57-col.5, line 3).

Alternatively, Johnson et al., which is drawn to ink jet ink, disclose the use of pigment with polymer attached in order to improve the dispersibility and dispersion stability of the pigments (col.1, lines 62-65, col.3, lines 27-29, col.4, line 59-col.5, line 5, and col.10, lines 60-61 and 66).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use pigment that is made dispersible by surface oxidation or pigment with polymer attached in the ink of JP 62015274 and thereby arrive at the claimed invention.

10. Claims 4-5, 8-9, 11, and 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 59059755 in view of Sano et al. (U.S. 5,503,664).

JP 59059755 discloses aqueous ink comprising 0.5-30% adduct of ethylene oxide and/or propylene oxide with glucose and water-soluble dye.

The difference between JP 59059755 and the present claimed invention is the requirement in the claims of saccharide.

Sano et al., which is drawn to ink jet ink, disclose the use of 0.1-40% saccharide such as glucose, mannose, sorbitol, etc. in order to produce ink that does not cause obstruction in nozzle and has good jetting stability (col.3, lines 48-67 and col.5, lines 5-11).

In light of the motivation for using saccharide disclosed by Sano et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use saccharide in the ink of JP 59059755 in order to produce ink which does not cause obstruction in nozzle and has good jetting stability, and thereby arrive at the claimed invention.

11. Claims 4-5, 7-9, 11-18, and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matrick et al. (U.S. 5,180,425) in view of Sano et al. (U.S. 5,503,664).

Matrick et al. disclose ink jet ink which possesses surface tension of 30-70 dyne/cm wherein the ink comprises colorant including pigment or water-soluble dye, 0.1-5% acetylene glycol, solvent such as alkylene glycol, and 5-55% alkylene oxide/polyol condensate made from reacting polyol such as glycerol, glucose, or sorbitol with alkylene oxide (col.3, lines 24-66, col.4, lines 32-36, col.9, lines 3-5, col.11, lines 46-47, and col.12, lines 31-39). Given that the alkylene oxide/polyol condensate is made from same number of alkylene oxide units and saccharide as presently claimed, it is clear that the alkylene oxide/polyol condensate would inherently possess same molecular weight as presently claimed.

The difference between Matrick et al. and the present claimed invention is the requirement in the claims of saccharide.

Sano et al., which is drawn to ink jet ink, disclose the use of 0.1-40% saccharide such as glucose, mannose, sorbitol, etc. in order to produce ink that does not cause obstruction in nozzle and has good jetting stability (col.3, lines 48-67 and col.5, lines 5-11).

In light of the motivation for using saccharide disclosed by Sano et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use saccharide in the ink of Matrick et al. in order to produce ink which does not cause obstruction in nozzle and has good jetting stability, and thereby arrive at the claimed invention.

12. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matrick et al. in view of Sano et al. as applied to claims 4-5, 7-9, 11-18, and 20-21 above, and further in view of *Introduction to Physical Polymer Science*.

The difference between Matrick et al. in view of Sano et al. and the present claimed invention is the requirement in the claim of the molecular weight distribution of the saccharide-alkyleneoxy derivative.

However, given that Matrick et al. disclose saccharide-alkyleneoxy derivative identical to that presently claimed, it would have been obvious to one of ordinary skill in the art that the saccharide-alkyleneoxy derivative would intrinsically possess same molecular weight distribution as presently claimed.

Evidence to support this position is found in *Introduction to Physical Polymer Science* (pages 97-99), which discloses that the polydispersity or molecular weight distribution of a

polymer depends on the type of polymerization used to make the polymer. As seen on page 99, chain polymerization results in polymer with polydispersity of 1.5-3 while step polymerization results in polymer with polydispersity of 2-4.

Thus, given that Matrick et al. et al. disclose saccharide-alkyleneoxy derivative identical to that presently claimed which is necessarily made by the same polymerization process as the saccharide-alkyleneoxy derivative presently claimed, it is clear that the saccharide-alkyleneoxy derivative of Matrick et al. et al. would intrinsically possess the same molecular weight distribution as presently claimed, and thus, one of ordinary skill in the art would have arrived at the claimed

13. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matrick et al. in view of Sano et al. as applied to claims 4-5, 7-9, 11-18, and 20-21 above, and further in view of Hayashi et al. (U.S. 6,500,248) or Johnson et al. (U.S. 6,478,863).

The difference between Matrick et al. in view of Sano et al. and the present claimed invention is the requirement in the claims of water-dispersible pigment.

Hayashi et al., which is drawn to ink jet ink, disclose the use of pigment which is made dispersible by surface oxidation in order to produce pigment which is stably present in the ink without dispersant (col.4, lines 36-50 and col.4, line 57-col.5, line 3).

Alternatively, Johnson et al., which is drawn to ink jet ink, disclose the use of pigment with polymer attached in order to improve the dispersibility and dispersion stability of the pigments (col.1, lines 62-65, col.3, lines 27-29, col.4, line 59-col.5, line 5, and col.10, lines 60-61 and 66).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use pigment that is made dispersible by surface oxidation or pigment with polymer attached in the ink of Matrick et al., and thereby arrive at the claimed invention.

Response to Arguments

14. Applicants' arguments filed 7/28/03 and applicants' 1.132 declaration filed 11/10/03 have been fully considered but they are not persuasive.

Specifically, applicants' argue that the combination of either JP 62015274, JP 59059755, or Matrick et al. with Sano et al. would not result in ink comprising combination of saccharide-alkyleneoxy derivative and saccharide. Rather, applicants argue that combining JP 62015274, JP 59059755, or Matrick et al. with Sano et al. would result in the substitution of the saccharide of Sano et al. for the saccharide derivative described in each of JP 62015274, JP 59059755, and Matrick et al.

However, JP 62015274, JP 59059755, and Matrick et al. each disclose the use of alkylene oxide derivative of saccharide while Sano et al. disclose the use of saccharide only. That is, the saccharide of Sano et al. is different from the saccharide derivatives disclosed by JP 62015274, JP 59059755, or Matrick et al. Thus, one of one of ordinary skill in the art would not substitute the saccharide of Sano et al. with the alkylene oxide derivative of saccharide as disclosed by either JP 62015274, JP 59059755, or Matrick et al.

Applicants also have filed a proper 1.132 declaration on 11/10/03 wherein ink within the scope of the present claims, i.e. comprising saccharide-alkyleneoxy derivative and saccharide, is

compared to ink outside the scope of the present claims, i.e. comprising saccharide-alkyleneoxy derivative only or saccharide only. It is shown that the ink of the present invention is superior in terms of nozzle clogging recovery property.

However, the results of the declaration do not establish unexpected or surprising results over the cited prior art for the following reasons.

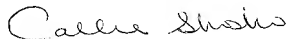
With respect to Iwata et al., it is noted that the declaration is not persuasive because Iwata et al. (examples 3 and 4) already disclose ink comprising combination of saccharide-alkyleneoxy derivative and saccharide, i.e. glycerol, as required in the present claims.

With respect to either JP 62015274, JP 59059755, or Matrick et al. in view of Sano et al., it is noted that the declaration is not persuasive because Sano et al. already disclose the criticality of using saccharide. Attention is drawn to comparative examples 2 and 3 of Sano et al. (col. 19, lines 60-66) that do not contain any saccharide. It is shown that these comparative inks are inferior with respect to obstruction, i.e. nozzle clogging recovery. The inks that comprise saccharide are superior in terms of obstruction. This is the same motivation for using saccharide as disclosed in the declaration. Thus, the declaration does not establish unexpected or surprising results over the cited prior art given that Sano et al. already disclose criticality of using saccharide in order to produce ink with superior nozzle clogging recovery.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
1/7/04